A few Northern Paiute and Shoshoni groups did make intensive use of small areas so that their population densities approached or even exceeded that of the Washo tribe. Steward (1938, 47-48) presents the Owens Valley Paiute (2.1 sq. mi. per person) and Shoshoni groups along the Humboldt River (3.3 to 5.2 sq. mi. per person) as examples of high population density for the Great Basin.

In the estimate given above, Kroeber was using a population of 1,000 for the Washo in an area of 6,200 km^2 (2,394 square miles). Earlier, Kroeber (1925, 944) had estimated a population of about 1,500 for the year A.D. 1770. This latter figure is probably closer to the Washo population in the middle 1800's. Furthermore, Washo territory was clearly larger than Kroeber's estimate. The Washo land claim case against the government in 1951 comprised a total of 9,872 square miles. This, in turn, appears to be an overstatement in terms of what is currently meant by aboriginal territory (cf., Indian Claims Commission 1959). The Washo had knowledge and some use of approximately 12,000 square miles in their "nuclear" and "peripheral lands". They made intensive use of less than 2,000 square miles, while their "nuclear" territory comprised about 4,000 square miles. Thus, population and territory figures suggest a density that is high for the Great Basin: 1,500 persons in 4,000 square miles or 2.7 square miles per person.

Physical Type

The published physical description of the Washo Indians consists of a few photographs and a series of anthropometric measurements made by Gifford (1926). These measurements were published in "Californian Anthropometry" along with several other samples. The accuracy of the description of any particular group presented in "Californian Anthropometry" is questionable on the grounds of the small sample sizes. For example, cephalic indices were listed for 48 groups, but 1/2 of these groups consisted of a sample of 8 or less with 10 groups represented by only one individual. The mean sample size for these 48 series with data on cephalic index is 16.3. In spite of its negative aspects, "Californian Anthropometry" is the only primary source on Washo anthropometry.

The physical types found by Gifford for the California Indians are listed below with the criteria that he used. Facial index (FI), nasal index (NI), and cephalic index (CI) should be read as 80 or lower (80-) and 80 or higher (80+). Stature (St) is given in centimeters so that 170 would be equivalent to 5 feet and 7 inches.

	FI	NI	CI	St
I. Low-faced. Found among the Yuki and a few surrounding groups of the north-central coast.	80-	80+	80-	160- 141
II. High-faced.	80+			
1. Californian			80+	
A. Narrow-nosed Extends from northern California, along the Sierra Nevada, in extreme southern California, and parts of the coast.	80+	80-	80+	170-
B. Tall Found among the Mohave and Yuma.	80+	80+	80+	170+
C. Broad-nosed Essentially north-central in distribution.	80+	83+	80+	170-
2. Western Mono Restricted to Western Mono and Tubatulabal.	80+	78-	78-	170-

A few comments on this classification are pertinent to the Washo. The Washo are grouped with the narrow-nosed subtype of the California type although their average height, according to this sample, is greater than that of the tall subtype. Gifford pointed this out (p. 227) in a discussion of the "tall" subtype "Broadheaded peoples of equally great stature, but relatively narrow-nosed, are the Washo (6 men averaged 173 centimeters)...The Mohave and Yuma measured 171 and 172 respectively."

Gifford used Hrdlička's (1904) reproductions of Broca's color scale for 142
determining skin color. "Observations were usually made upon the unexposed area. The general skin color of the unexposed skin in California Indians is number 24, with slight variations. There seem to be no tribal differences in this respect, although there is some individual variation." Three of the Washo sample of 16 had skin color readings of 24 while the rest were slightly darker with an average for the group of 25.5.

Washo hair tends to be straight, coarse, and black. Color of the iris is 141 ●
dark brown. Size of ear lobes varies (8 small, 5 medium, 3 large). Attachment of ear lobes varies (11 attached, 3 intermediate, and 2 separate). "Darwin's point" on the ears was absent in all but one. The forehead showed a moderate slope in 9, intermediate in 4, and vertical in 3. Prognathism was

absent in 7 and slight in 9. Lip thickness ranged from 3 medium thin, to 8 medium to 4 medium thick, and 1 thick. Chin prominance showed as 9 prominant, 3 medium-prominant, and 4 medium. 141

The Washo sample of 16 contained little anthropometric variation from one individual to the next. In a table of standard deviations by Gifford on the cephalic index, facial index, and nasal index of 15 groups with samples of 10 or more individuals, the Washo were next to being the least variable with a mean of standard deviations of 3.81. The most variable group had a mean of 6.71. This implies a relatively stable inbreeding population for the Washo. [161]

Kennedy (1959) included Gifford's data on the Washo in a general survey of Great Basin anthropometry. Kennedy (p. 13) described five physical type areas with the Washo in the "Western Area." "The Western Area (California from the Oregon line to the southern periphery of the Great Basin) contains people with broader heads than are to be found in the Northern Area, and brachycephaly is common for females. The faces are euryprosopic. The nose is mesorrhine, but as one moves southward the nose becomes broader."

Kennedy found the majority of the highest absolute mean values for all measurements and indices and the greatest degree of variability in the Western Great Basin. He also found a tendency toward brachycephaly, broader faces, and higher stature in the west.

Kennedy's averages for Great Basin living male crania are included for comparative purposes in the following anthropometric description of the Washo from Gifford's material. The measurements from two groups that border Washo territory are also included, the Central Miwok to the west and the Northern Paiute to the east. All three of these groups were classified by Gifford as belonging to the "narrow-nosed subtype" of the "California type" in the "high-faced" division. The "Sa" refers to the sample size.

	Washo		No. Paiute		C. Miwok		Great Basin
	Sa		Sa		Sa		
Cephalic index	16	84	16	80	16	88	79.51
Facial index	10	82	11	83	16	84	82.28
Nasal index	11	77	11	78	16	79	78.94
Stature - men	6	173	6	169	4	165	166.9
Stature - women	5	158	3	160	1	152	
Ear index	16	51	13	50	6	48	
Reach index - men	6	102	6	104	4	101	
Reach index - women	5	103	3	99	1	104	
Head length - men	6	190	6	195	9	184	192.24
Head length - women	5	181	5	185	7	177	
Head breadth - men	6	158	6	155	9	162	153.17
Head breadth - woman	5	152	5	145	7	156	
Face length - men	6	125	6	125	9	129	119.92

	Washo		No. Paiute		C. Miwok		Great Basin
	Sa		Sa		Sa		
Face length - women	5	120	5	117	7	118	
Face breadth - men	6	151	6	150	9	152	
Face breadth - women	4	145	5	140	7	143	
Nose length - men	6	55	6	57	9	56	52.60
Nose length - women	5	52	5	51	7	53	
Nose breadth - men	6	43	6	44	9	45	43.57
Nose breadth - women	5	40	5	40	7	41	
Ear length - men	6	69	4	67	3	73	
Ear length - women	5	67	5	66	3	72	
Ear breadth - men	6	34	4	34	3	35	
Ear breadth - women	5	35	5	30	3	35	

Although the use of such small samples in the above data limits the level of confidence we can have in any theoretical statements, a few tentative remarks may be made. In spite of linguistic and geographical barriers, the Washo appear racially very similar to their neighbors to both the east and west of the Sierra Nevada.

The close similarity in the indices and measurements of these groups is an indication of a relatively large inbreeding population. On the other hand, the Washo sample showed a low degree of variability from one individual to the next, an indication that a small homogenous gene pool is present. There is ethnographic evidence to support both views. The Washo did intermarry with the Northern Paiute, in Antelope Valley and probably at the Honey Lake area as well. The Washo also carried on trade and social intercourse with the central valley Californian peoples. In fact, part of Gifford's sample (not included here) contained Washo individuals who had one non-Washo parent. One also hears of the social conservatism of the Washo and their past fears of Miwok and Northern Paiute raids, factors against outbreeding.

Social Organization

Compared with primitive peoples generally, the Washo kinship system is neither elaborate nor extensive. There is little emphasis on lineage or ancestors. "The Washo lacked sibs, lineages, and clans" (Freed 1960, 361). Reckoning of descent is bilateral. Certain behaviors that are rigidly prescribed in many primitive societies are absent in Washo society. There is no mother-in-law avoidance. Monogamy, polygny, and polyandry (fraternal) are all practiced, although monogamy is most common and polyandry is rare. Sororal polygny and the levirate occur, but neither the sororate nor the levirate are required. This writer has knowledge of only two apparently polyandrous marriages.[1]

Residence after marriage is usually bilocal (that is, patrilocal or matrilocal), but the couple may move in with relatives other than the parents. Inheritance

Blood pressure determinations were
126
141 made by the senior author at least three times during each interview, at five minute intervals. Heights and weights were also determined. Interviews
124 were conducted in the homes of respondents.

124 It was hoped at the outset that each adult member of the three Washo
114 communities of Dresslerville, Woodfords and Carson City would be included in the survey. However, the pressures of time limited the series to 190 persons, representing approximately 50% of the adult population of these three communities. All but two or three of the Washo contacted agreed to participate in the study. Nonetheless, the possibility that the interviewed group was biased in some manner, such as being more geographically accessible and therefore socially "different" from non-contacts, suggests that results be interpreted with caution.

147 For the analysis that follows, a diastolic blood pressure, taken during
128 the initial interview, of 90 mm. Hg. or more was defined as an indication of hypertension. Tests of significance used in the analysis are based on Chi squares or T-tests. Findings significant at or beyond the 10% level of confidence are reported.

Results

147 The mean blood pressure levels of the Washo studied are set out in
158 Table I by age and sex. It will be noted that in this sample blood pressure increases with age, that the males have higher pressures in the younger ages and the females higher pressures in the older ages. Further, Washo blood pressures are high in terms of the criterion traditionally used as an indication of hypertension -- a reading of 90 mm. Hg. or more for the diastolic -- as indicated by the fact that the mean pressures, particularly of the older groups, are either very close to, or above, the upper limits of "normal."